

instead of a nucleolus, there is formed at the centre of the nucleus a whole group of several dozens of small round balls, which collect into a sphere placed at some distance from the walls of the nucleus. Afterwards these balls continue to divide for some time, thus becoming more and more minute at the same time that their number reaches several hundred. During all the time that these phenomena are being produced the ovum enlarges and attains its definitive diameter, which is nearly twenty times that of the entodermic cells which gave origin to the ovum.

The definitive aspect of the perfectly mature ovum before fecundation is that of a sphere of granular protoplasm with a central and perfectly *uniform* nucleus, showing not the smallest trace of any nucleolus whatever. The hundreds of granules into which the nucleolus has been divided have become dissolved in the protoplasm of the nucleus.

Summary.—1. The ova of *Encope* are developed from entodermic cells.

2. The nucleolus acquires the form of a chaplet twisted upon itself; the grains of the chaplet become isolated and continue to divide.

3. The mature ovum before fecundation has no longer the least trace of a nucleolus in its nucleus, which is entirely homogeneous.—*Comptes Rendus*, April 26, 1880, p. 1012.

Observations on the Megapodes. By M. E. OUSTALET.

A commission given to me by the École des Hautes Études having enabled me to visit the great museums of England and Holland, I have been able to complete the investigations that I had undertaken upon the Gallinaceous birds of the family Megapodiidæ, and I have ascertained that the number of species admitted by modern ornithologists is too large, and may be reduced to about twenty-five.

By a comparative study of skeletons of Talegallas, Maléos (*Megacephalon*), Megapodes, Guans (*Penelope*), and Guinea-fowl, I have also ascertained that the creation of a separate group, proposed by Prof. Huxley*, that of the Peristeropodes, including the two families Cracidæ and Megapodiidæ, was fully justified; but that the Pintados present certain analogies of structure with these birds which that learned zoologist has not, perhaps, sufficiently brought out.

On dissecting a Talegalla I met with certain arrangements indicated by Dr. Garrod in the Maléo; but, on the other hand, I remarked that other peculiarities in the mode of insertion of the muscles of the wing and leg were not of so much zoological importance as that anatomist thought it right to ascribe to them.

Again, on examining a collection recently sent by M. Bruijn I found that *Talegallus jobiensis* also occurs on the continent of New Guinea, and that *T. pyrrhopygius*, when adult, possesses a wattle on the front of the neck, and that it always has the nostrils rounded

* "On the Alectoromorphæ," in Proc. Zool. Soc. 1868.

and the bill and feet much stronger than in *T. Cuvieri*. Analogous characters, but still more strongly marked, may be observed in a new species from the island of Waigiou, a species which I shall propose to call *Talegallus Bruijnii*. This *Talegalla* from Waigiou not only bears a wattle on the front of the throat, but it has on the middle of the head a regular crest which is continued posteriorly by a sort of hood with two pendants. It deserves to be classed, with *T. pyrrhopygius*, in a new subdivision of the genus *Talegallus*, the subgenus *Æpypodius**.

Recent discoveries have compelled me partially to rectify the frontiers assigned to the Peristeropodes by Prof. Huxley, and have proved that the northern limit of these birds only coincides at one point, near Lombok, with Wallace's line. Considered generally, the area of habitat of the Peristeropodes forms on the surface of the globe a band extending between 20° of north latitude and 40° of south latitude, but cut up in the direction of the meridians by two enormous gaps. The Hæccos and the Penelopes occupy a considerable portion of this band, namely that which corresponds to tropical America; while the Megapodes and their allies are spread over islands which seem for the most part to be the fragments of an old southern continent. This hypothesis is supported by the fact that the Megapodes cease suddenly towards the east in the region where the atolls commence. To the west the Megapodes are still more widely separated from the Cracidæ; but it is important to remark that in this direction the African continent is inhabited by the Pintados or Numididæ, the affinities of which to the Megapodes are greater than is generally supposed.

Thus the geographical distribution of the Megapodiidæ seems to be perfectly in agreement with their zoological relationships; but when we study the habitat of each genus, or, still better, of each species, we recognize many anomalies which it is often difficult to explain in a satisfactory manner. To cite only one example, we are astonished to find on the Nicobars a Megapode allied to those of New Guinea, whilst we find no analogous form in Java, or in Sumatra, or in Malacca. I do not think, as Mr. Wallace does, that this species has been imported by the Malays, but rather believe that it has remained, along with *Calœnas nicobarica*, as the evidence of a fauna that has disappeared. Every thing, in fact, concurs to prove that the Megapodiidæ represent an extremely ancient type among the Gallinacæ. In their mode of reproduction they seem to have retained some characters of the reptiles, since they lay eggs of extraordinary size, the incubation of which they often abandon to the action of the sun's rays.

Lastly, it may perhaps be well to recall the fact that up to the present day there has not been discovered in the Tertiary strata of these countries the smallest fragment that can be referred to a

* From *ἀπύς*, elevated, and *πόδιον*, support, foot. I should certainly have preferred the name *Æpypus* to *Æpypodius*, if the latter had not the advantage of reminding us by its termination of the word *Megapodius*.

Peristeropode, still less to a Talegalla or a Megapode. From this negative result we may, I will not say assert, but at least suppose that at that distant epoch this remarkable type of Gallinaceæ was already foreign to Europe, and was confined to the Indo-Australian region.—*Comptes Rendus*, April 19, 1880, p. 906.

On the Structure of some Coralliaria. By M. C. MEREJKOWSKY.

Among the Coralliaria, the Actiniæ especially have been the best investigated. The almost total deficiency of facts relating to the microscopic structure of the other groups decided me to undertake a special study of some species common in the Bay of Naples, such as *Astroïdes* &c. The following are the results at which I have arrived.

The *ectoderm*, examined by means of sections and of maceration, proved to be composed of the following elements:—

1. Ordinary *ectodermic* cells of very elongated form, strongly depressed and dilated at the superior extremity, which is constantly furnished only with a single cilium. In this respect the ectodermic cells of *Astroïdes* are very notably distinguished from those of the Actiniæ described by M. Heider, which have always several very short cilia.

2. The preceding cells, but with this difference, that they become transformed at their base into an excessively long and delicate filament, sometimes furnished with several inflations, which our knowledge of the group of the Cœlenterata authorizes me to call *nervous filaments*.

3. Epithelio-muscular elements composed of cells no. 1 (more normal, that is to say shorter and broader) united at their base to muscular fibrillæ. This kind of element is not, however, so frequently met with here as in the endoderm; at their apex there is always a long cilium.

4. Nematocysts of two kinds: larger ones, often surrounded by protoplasm, with a nucleus and a long filament (nervous) in the posterior part; the others smaller, of a different form, and always provided with a long posterior filament; the filament here and there bears small nodosities.

5. The last elements of the ectoderm are the glandular cells, always pyriform and with coarsely granular contents.

Mesoderm.—The elastic and structureless membrane which separates the ectoderm from the entoderm varies in thickness in the different parts of the body; it forms longitudinal protuberances upon the faces of two mesembryenthal septa which unite at the surface of the stomach. The muscles which line this elastic membrane in a single layer are longitudinal in the interior of the animal, and arranged in horizontal circles at the exterior. They are either long slightly flattened filaments, the relations of which to the other histological elements it is not easy to ascertain, or they are fibrillæ forming a part of the epithelio-muscular elements.

We must also mention another very curious element, consisting of cells of comparatively large size and exceedingly flattened, much